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Indian Standard

METHODS OF TEST FOR POLYVINYL CHLORIDE BOOTS

PART 1 MEASUREMENT OF THICKNESS

1. Scope — This standard (Part 1) prescribes the test procedures for checking the thickness of components for polyvinyl chloride boots.

2. Terminology

2.1 For the purpose of this standard, the definitions given in IS: 2050-1967 'Glossary of footwear terms', shall apply.

3. Preparation of Boots for Measurements of Thickness

3.1 Preparation for Measurement of Insole and Outsole — Cut the boot longitudinally and perpendicular to the surface, through the centre of the sole on a line drawn from the centre of the toe cap to the centre of the heel.

Locate the centre line illustrated in Fig. 1, by placing the boot on a horizontal surface and against a vertical plane so that it touches the edge of the sole at points A and B on the inner side of the boot. Construct two further vertical planes at right angles to the first vertical plane so that they meet the sole at points X and Y, the toe point and the heel point, respectively. Draw a line through X and Y. This line shall constitute the centre line for the forepart of the boot.

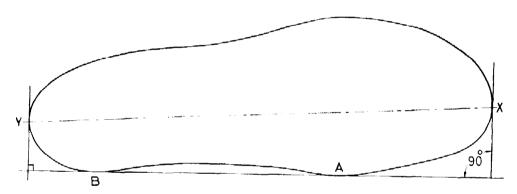


FIG. 1 CENTRE LINE OF THE BOOT

3.2 Preparation for Measurement of Foxing Strip — Cut horizontally through the foxing strip right round the upper at a distance of 13 mm above the top surface of the insole adjacent to the upper.

4. Apparatus

4.1 Thickness dial gauge calibrated in 0.1 mm or an equivalent apparatus may be used for the determination of thickness in the routine course. Graduated eyepiece with 0.1 mm scale spacing of travelling microscope or screw gauge shall be used wherever necessary/applicable.

5. Procedure

- **5.1** Boot Upper Take four measurements of the combined thickness of PVC and the fabric symmetrically round the top of the boot not less than 3 mm and not more than 15 mm below the top binding. Measure the thickness of the coating on the upper from the coating surface to the 'peaks' of the fabric weave structure which are nearest to this surface.
- **5.2** Foxing Strip at the Toe Measure the combined thickness of PVC and the fabric, excluding pattern if any on the cut section, within 6 mm of the centre line of the boot at the toe.

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When a protective toe cap is incorporated in the boot, measure the combined thickness of the PVC and if fabric, excluding pattern if any, from the outside surface of the protective toe cap.

- **5.3** Foxing Strip at the Heel Measure the combined thickness of PVC and the fabric, excluding pattern, if any on the cut section, within 6 mm of the centre line of the heel.
- **5.4** Foxing Strip in Other Areas Take four measurements of the combined thickness of PVC and the fabric, excluding pattern, if any, on the cut section, at points symmetrically round the boot in the foxing strip area but not in either the heel or the toe areas.
- 5.5 Full Thickness of the Boot Bottom Measure the thickness of the boot bottom on the cut section from the upper surface of the insole to the outer surface of the outsole. Take the measurements both over and between the cleats, including pattern, if any, at three separated points in the tread region. Exclude any sock that may be inserted after the boot is moulded.
- 5.6 Outsole Measure the thickness of the outsole on the cut section, both over and between the cleats, including pattern, if any, from the lower surface of the insole, filler or midsole (whichever is the lowermost) to the outer surface of the outsole. Take three measurements at different points in the tread region.
- 5.7 Heel Measure the full heel thickness DE, as illustrated in Fig. 2, on the cut section over any cleat or pattern, if any, perpendicularly from the upper surface, CD, of the insole and the filler, the insole line CD is 10 mm in length from point C which is at the top of the back edge of the heel on the outside.

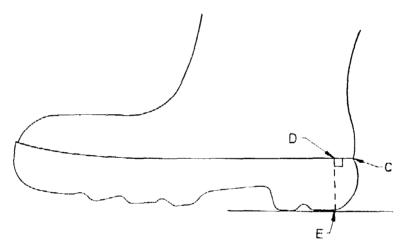


FIG. 2 MEASUREMENT OF THE HEEL THICKNESS

Where there is a filler block present, measure the thickness from the underside of the block to the surface of the heel. Take the measurements both over and between the cleats, at three positions for each, or as many as the heel design will allow if less than three.

6. Test Report

- 6.1 The report shall include the following:
 - a) Identification of test piece; and
 - b) Results obtained for thickness, as individual values.

EXPLANATORY NOTE

Components from upper, foxing strip, sole and heel may have to be checked as separated components, even if the boots are known to have been made by a single or double injection moulding process.

In the preparation of this standard, considerable assistance has been derived from the draft revision of BS 6159 (Part 1): 1981 'Polyvinyl chloride boots — Part 1 Specification for general industrial lined or unlined', issued by the British Standards Institution.

- IS: 12240 1988 Methods of test for polyvinyl chloride boots has been published in various parts as follows:
 - Part 1 Measurement of thickness,
 - Part 2 Determination of durometer hardness Shore A,
 - Part 3 Determination of relative density,
 - Part 4 Determination of volatility,
 - Part 5 Determination of lead content,
 - Part 6 Determination of tensile strength and elongation at break,
 - Part 7 Flexing test resistance to cut growth for soling material, and
 - Part 8 Resistance to flexing for polyvinyl chloride upper material.